

Archives of **Biochemistry and Biophysics**

Editors

Paul D. Boyer

Melvin Cohn

Karl Folkers

Henry Lardy

Luis F. Leloir

C. H. Li

C. M. McCay

W. D. McElroy

Thomas L. McMeekin

H. S. Mason

A. Neuberger

F. F. Nord

C. Rimington

Howard K. Schachman

Earl R. Stadtman

Thressa C. Stadtman

H. Theorell

K. V. Thimann

W. W. Umbreit

Sidney Weinhouse

R. J. Williams

R. W. G. Wyckoff

Volume 84 • 1959



ACADEMIC PRESS
NEW YORK and LONDON

Copyright ©, 1959, by Academic Press Inc.

ALL RIGHTS RESERVED

No part of this volume may be reproduced in any form, by photostat, microfilm, or any other means, without written permission from the publishers.

Made in the United States of America

CONTENTS OF VOLUME 84

NUMBER 1, SEPTEMBER 1959

B. P. BALIGA, MARY E. BAYLISS AND CARL M. LYMAN. Determination of Free Lysine ϵ -Amino Groups in Cottonseed Meals and Preliminary Studies on Relation to Protein Quality	1
GORDON C. MILLS AND LARRY B. SUMMERS. The Metabolism of Nucleotides and other Phosphate Esters in Erythrocytes during <i>in Vitro</i> Incubation at 37°	7
JENG M. HSU, BACON F. CHOW AND KUNIO OKUDA. Vitamin B ₁₂ Deficiency and Glutathione in the Erythrocytes and Livers of Chicks	15
DORIS H. CLOUET AND MALCOLM W. GORDON. The Effect of Tryptophan on the Tryptophan Peroxidase Activity of Cell-Free Systems from Rat Liver	22
MALCOLM W. GORDON AND IRENE J. RYDZIEL. The Role of Mitochondria in <i>in Vitro</i> Tryptophan Peroxidase Increments	32
J. B. LONGENECKER AND N. L. HAUSE. Relationship Between Plasma Amino Acids and Composition of the Ingested Protein	46
BENJAMIN E. SANDERS, ORIN P. MILLER AND MAUREL N. RICHARD. Preparation of Ceruloplasmin	60
ROBERT E. BEYER AND ROBERT D. KENNISON. Relationship between Prothrombin Time and Oxidative Phosphorylation in Chick Liver Mitochondria	63
J. LOWELL YOUNG AND J. E. VARNER. Enzyme Synthesis in the Cotyledons of Germinating Seeds	71
BERNARD N. BACHRA, ALBERT E. SOBEL AND JOHN W. STANFORD. Calcification. XXIV. Mineralization of Collagen and Other Fibers	79
GORO KIKUCHI AND E. S. GUZMAN BARRON. Electron Transport System in <i>Fusarium lini</i>	96
JAMES WYNN, IRENE FABRIKANT AND WILLIAM P. DEISS. A Method for Extraction and Chromatographic Separation of Plasma Iodoamino Acids	106
DANIEL E. DUGGAN. Spectrofluorometric Determination of Tocopherols	116
PHILIP PERSON AND ALBERT FINE. Cytochrome Oxidase and Succinoxidase Activity of <i>Limulus</i> Gill Cartilage	123
MICHAEL IACOBELLIS, LAWRENCE J. SCHROEDER AND ARTHUR H. SMITH. The Synthesis of Glyconyl Peptides	134
WILLIAM M. BALFOUR AND FREDERICK E. SAMSON, JR. Transphosphorylases in the Firefly Lantern	140
NORMAN P. SALZMAN AND EDWIN D. SEBRING. Utilization of Precursors for Nucleic Acid Synthesis by Human Cell Cultures	143
FRANCIS J. BEHAL. Biochemical Studies of Spore Formation in <i>Aspergillus niger</i>	151

D. L. WOERNLEY, C. CARRUTHERS, K. T. LILGA AND A. BAUMLER. The Distribution of Cytochrome Oxidase Activity in Ehrlich Ascites Cell Particulates Obtained from Glycerol Homogenates. . .	157
M. C. NATH AND A. SAIKIA. The Effect of Different Food Fats on Experimental Atherosclerosis and the Beneficial Effect of Essen- tial Fatty Acids, Vitamin B ₁₂ and Hydrolyzed Glucose Cyclo- acetoacetate.	162
MARIE N. LIPSETT, RUTH B. REISBERG AND OSCAR BODANSKY. Reac- tions of Purified Tissue Phosphohexose Isomerases with Liver Phosphohexose Isomerase Antiserum.	171
SAM SILBERGELD AND HERBERT E. CARTER. Toxicity of Glycolic Acid in Male and Female Rats.	183
HELEN LEES AND O. H. GAEBLER. Utilization and Transfer of Nitrogen from Glycine, L-Alanine, L-Glutamic Acid and L-Aspartic Acid during Cessation and Induction of Growth.	188
JOHN EICHHORN AND OSCAR HECHTER. The Unequal Incorporation of Tracer Progesterone-C ¹⁴ into the Corticosterone and Cortisol Synthesized by Homogenates of Bovine Adrenal Cortex.	196
ZACHARIAS DISCHE, PAUL DI SANT'AGNESE, CHARLES PALLAVICINI AND JOSHUA YOULOS. Composition of Mucoid Fractions from Duodenal Fluid of Children and of Adults.	205
NORMAN R. JOSEPH, HUBERT R. CATCHPOLE, DANIEL M. LASKIN AND MILTON B. ENGEL. Titration Curves of Colloidal Surfaces. II. Connective Tissues.	224
LETTERS TO THE EDITORS	
JOSEPH A. ONTKO. Ketogenesis by Liver Slices from Fasting Rats Exposed to X-Irradiation.	243
LEOPOLD WEIL AND THOMAS S. SEIBLES. Cleavage of Disulfide Bonds in Proteins by the Method of Swan.	244
MILTON J. ALLISON, MARVIN P. BRYANT AND R. N. DOETSCH. Conversion of Isovalerate to Leucine by <i>Ruminococcus</i> <i>flavefaciens</i>	245
PETAR ALAUPOVIC AND B. CONNOR JOHNSON. Relationship be- tween Co-enzyme Q and α -Tocopherol Metabolites.	247
S. UDENFRIEND, C. R. CREVELING, M. OZAKI, J. W. DALY AND B. WITKOP. Inhibitors of Norepinephrine Metabolism <i>in</i> <i>Vivo</i>	249
STANLEY KUSHINSKY AND WILMONTE NASUTAVICUS. Synthesis of 6-Ketoestriol and 6-Hydroxyestriol.	251
S. GARATTINI, P. PAOLETTI AND R. PAOLETTI. Lipid Biosynthesis <i>in vivo</i> from Acetate-1-C ¹⁴ and 2-C ¹⁴ and Mevalonic-2-C ¹⁴ Acid.	253
Book Reviews.	256
List of Forthcoming Papers.	265

TATSUICHI IWAMURA AND JACK MYERS. Changes in the Content and Distribution of the Nucleic Acid Bases in <i>Chlorella</i> during the Life Cycle.....	267
F. W. LENGEMANN. The Metabolism of Magnesium and Calcium by the Rat.....	278
JOSEPH R. SPIES, DORIS C. CHAMBERS AND E. J. COULSON. The Chemistry of Allergens. XIII. Ion-Exchange Fractionation of the Cottonseed Allergen and Immunological Properties of the Products.....	286
R. L. LOHMAR AND HARVEY L. TOOKEY. Autoxidation in Aqueous Carotene-Linoleate Systems.....	297
L. VAN DEN BERG. The Effect of Addition of Sodium and Potassium Chloride to the Reciprocal System: $\text{KH}_2\text{PO}_4\text{-Na}_2\text{HPO}_4\text{-H}_2\text{O}$ on pH and Composition During Freezing.....	305
DAVID W. YESAIR, JACK GOLDSTEIN AND LOUISE J. DANIEL. The Effect of Vitamin B ₁₂ on the Blood Serum Protein and Lipoprotein in the Developing Chick Embryo.....	316
ERICH HEFTMANN, EKKEHARD WEISS, HAROLD K. MILLER AND ERICH MOSETTIG. Isolation of Some Bile Acids and Sterols from the Feces of Healthy Men.....	324
TOSHIO KOBAYASHI, J. N. RINKER AND HENRY KOFFLER. Purification and Chemical Properties of Flagellin.....	342
R. W. JONES, N. W. TAYLOR AND F. R. SENTI. Electrophoresis and Fractionation of Wheat Gluten.....	363
KSHIROD R. BHATTACHARYA, JYOTIRINDRA DATTA AND DURLAV K. ROY. Application of Sakaguchi Reaction to the Quantitative Estimation of Arginine: a Method Involving Paper Chromatography.....	377
R. M. GRIMES AND C. W. DUNCAN. Electrophoretic Properties of the Globins of Bovine Hemoglobins A and B.....	393
RALPH A. SHAW AND HORACE D. JACKSON. Isolation of a Respiratory Inhibitor from Alfalfa.....	405
HORACE D. JACKSON AND RALPH A. SHAW. Chemical and Biological Properties of a Respiratory Inhibitor from Alfalfa Saponins.....	411
J. CERBULIS, J. H. CUSTER AND C. A. ZITTLE. Action of Rennin and Pepsin on α -Casein: Paracasein and Soluble Products.....	417
PAUL LATIMER AND EUGENE RABINOWITCH. Selective Scattering of Light by Pigments <i>in vivo</i>	428
I. C. MACWILLIAM AND G. HARRIS. The Separation of Limit Dextrinase from R-Enzyme and Aspects of the Activities of the Separated Enzymes.....	442
H. E. BROCKMAN, A. G. DEBUSK AND R. P. WAGNER. Mutant-Associated Antagonisms in <i>Neurospora crassa</i>	455

JOHN GORMAN AND HARLYN HALVORSON. Relationship between Protein and Nucleic Acid Synthesis in <i>Pseudomonas azotogenensis</i> Grown in Hexetidine.	462
JOHN GIOVANELLI AND ANTHONY SAN PIETRO. Photosynthetic Pyridine Nucleotide Reductase. II. Photoinactivation in the Presence of Chloroplasts.	471
CARL M. LYMAN, B. P. BALIGA AND MARGARET W. SLAY. Reactions of Proteins with Gossypol.	486
ALLEN F. REID, RICHARD L. CALDWELL AND JOHN C. VANATTA. The Use of Activation Analysis and Radiosulfate Space to Determine Intracellular Sodium.	498
H. BLOEMENDAL AND G. TEN CATE. Isolation and Properties of α -Crystallin from the Bovine Lens.	512
M. J. MYCEK, D. D. CLARKE, A. NEIDLE AND H. WAELSCH. Amine Incorporation into Insulin as Catalyzed by Transglutaminase.	528
LETTERS TO THE EDITORS	
JAMES B. RAGLAND. The Role of ATP-Sulfurylase in the Biosynthesis of Cysteine and Methionine by <i>Neurospora</i>	541
STANLEY P. BURG. Tracer Experiments on the Formation of Ethylene by Apple Tissue.	543
W. C. McMURRAY AND R. W. BEGG. Effect of Valinomycin on Oxidative Phosphorylation.	546
Book Reviews.	549
List of Forthcoming Papers.	554
Books Received for Review.	556
Author Index.	558
Subject Index.	560
Index of Book Reviews.	562